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10/501,338	07/23/2004	Satoshi Sugiura	107156-00244	3659

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EXAMINER

NGUYEN, JIMMY H

ART UNIT	PAPER NUMBER
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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,338	Applicant(s) SUGIURA, SATOSHI	
	Examiner Jimmy H. Nguyen	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's preliminary amendment filed on 07/23/2004. Claims 1-19 are currently pending in the application. An action follows below:

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1 and 10, these claims recite a feature, "...said at least two display devices lying in front and behind..." First, it is not clear that **each or all** of said at least display devices is/are lying in front **and** behind. In the case of each of display devices lying in front **and** behind, it is not clear what element(s) lies in front **and** behind of the display device. Further, it is not clear what element(s) lies in front **and** behind of said at least two display devices. Accordingly, it is considered that the invention is not clearly defined.

As to claim 2-9 and 11-19, since these claims depend upon claims 1 or 10, these claims are rejected for the same reason set forth in claims 1 and 10.

Notice to Applicant(s)

4. It is noted applicants that due to the above 112 rejection, the following art rejections are based as best understood by the examiner.

5. Further, note that the below mentioned disclosure(s) of the reference(s) may be just at least one of many places where the reference(s) teaches information relating to the claimed

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limitation(s). In order to better understand how the claimed limitations are taught by the reference(s), the entire reference(s) must be read as suggested by the examiner.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiroaki (US 6,661,425 B1).

As to claims 1 and 10, Hiroaki discloses a spatial image type display (an information input/output device as shown in Fig. 1) comprising: a display unit (a terminal unit 120; see Figs. 1 and 6) enclosed by an inherent frame; an electric circuit (a circuit including an image generating unit 100 and a control unit 110; see Fig. 1) including a display control circuit (a control unit 110; see Fig. 1) for displaying images; and at least two display devices (two displays 122, 123; see Figs. 1 and 6) included in said display unit (120), wherein said at least two display devices having respective display surfaces for displaying image data in the same direction, said display surfaces being aligned with an appropriate spacing therebetween (see Fig. 6), wherein said display surface of a front display device (122) lying in front of the rear display (123) has a transparent region for transmitting the image data on said display surface of a rear display device (123) forward (see col. 18, lines 38-51). Accordingly, Hiroaki discloses all the claimed limitations except for an electric circuit substrate, i.e., an electric circuit disposed on a substrate.

However, Official Notice is taken that both the concept and the advantages of disposing an electric circuit on a substrate to fixedly secure the electric circuit and to easily assemble the device as well as to remove or to attach the electric circuit, from or to the device, are well-known and expected in the art. It would have been obvious to a person of ordinary skill in the art to dispose an electric circuit of Hiroaki on a substrate, because this would fixedly secure the electric circuit and easily assemble the device as well as to remove or to attach the electric circuit, from or to the device.

As to claim 2, Hiroaki discloses a number of pixels formed on said respective display surfaces of said at least two display devices (122, 123) at a predetermined pixel pitch (see col. 12, lines 41-43; col. 22, lines 48-53; col. 23, lines 5-10; col. 24, lines 47-53).

As to claim 3, Hiroaki discloses a number of pixels formed on said respective display surfaces of said at least two display devices at different pixel pitches depending on said respective display devices (see col. 12, lines 43-47; col. 24, lines 54-57).

As to claims 4 and 5, Hiroaki discloses the transparent region formed at least in conformity with the pixel pitch either on said display surface of said front display device or on said display surface of said rear display device, by virtue of the plural stacked-up transparent displays described at col. 18, lines 38-51 and col. 2, lines 29-40.

As to claim 6, Hiroaki discloses said respective display surfaces of said front display device (122) and rear display device (123) displaying the same image data with different brightness to make stereoscopic display (see col. 2, lines 29-40; col. 9, line 28 through col. 10, line 6).

As to claim 7, Hiroaki discloses said respective display surfaces of said front display device and rear display device lying in front and behind display split image data to make stereoscopic display, said split images being obtained by splitting the image to be displayed (see col. 10, lines 7-27).

As to claims 8 and 9, Hiroaki discloses each display device made of an organic EL display or a rearmost display device (123) made of a liquid crystal display and the front display device (122) made of an organic EL display (see col. 17, line 65 through col. 18, line 51).

As to claim 11, Hiroaki discloses the electric circuit (100, 110) feeding image data signals which are produced by adjusting an amplitude of a video signal to said respective display devices (see Fig. 1; col. 6, lines 40-45 and lines 52-57; col. 9, line 45 through col. 10, line 6).

As to claim 12, see the rejection to claim 6 above.

As to claim 13, see the rejection to claim 7 above.

As to claim 14, see the rejection to claim 8 above.

As to claim 15, see the rejection to claim 9 above.

As to claims 16 and 17, Hiroaki discloses the image data comprising a number of pixel data or a number of groups of pixel data (see col. 22, line 48 through col. 23, line 4; col. 26, lines 45-54).

As to claim 18, Hiroaki discloses the transparent region overlapped with a region of the image data of the rear display device with the spacing kept in a direction of an optical axis (see Fig. 6 and by virtue of the transparent displays).

As to claim 19, Hiroaki discloses the amplitudes of the image data signals set in accordance with a depth of each portion of the stereoscopic image with respect to a reference

position, which is an assumed position of a viewer (see Fig. 6; col. 6, lines 40-45 and lines 52-57; col. 9, line 45 through col. 10, line 6).

8. Claims 1-7, 10-13 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suyama et al. (US 6,525,699 B1), hereinafter Suyama.

As to claims 1 and 10, Suyama discloses a spatial image type display (a 3-D display; see Figs. 3, 26A, 34; col. 10, line 40) comprising: a display unit (a unit including elements 101 and 102 as shown in Fig. 3, elements 1126-1130 as shown in Fig. 26A, or elements 2102 and 2103 in Fig. 34) enclosed by a frame (see Fig. 3); an electric circuit (a circuit including elements 1102-1105 as shown in Fig. 26A or elements 2104-2106 as shown in Fig. 34) including a display control circuit (a control unit including elements 1103-1105 as shown in Fig. 26A or elements 2104 and 2106 as shown in Fig. 34) for displaying images; and at least two display devices (display devices 101 and 102 as shown in Fig. 3, display devices 1126-1130 as shown in Fig. 26A, or display devices 2102 and 2103 in Fig. 34) included in said display unit, wherein said at least two display devices having respective display surfaces for displaying image data in the same direction, said display surfaces being aligned with an appropriate spacing therebetween (see Fig. 3, 26A, and 34), wherein said display surface of a front display device (101 of Fig. 3; 1106 of Fig. 26A; or 2102 of Fig. 34) lying in front of the rear display (102 of Fig. 3, 1110 of Fig. 26A, or 2103 of Fig. 34) has a transparent region for transmitting the image data on said display surface of a rear display device forward (see Figs. 3, 26A, 34, and 57; col. 37, line 64 through col. 38, line 6). Accordingly, Suyama discloses all the claimed limitations except for an electric circuit substrate, i.e., an electric circuit disposed on a substrate.

However, Official Notice is taken that both the concept and the advantages of disposing an electric circuit on a substrate to fixedly secure the electric circuit and to easily assemble the device as well as to remove or to attach the electric circuit, from or to the device, are well-known and expected in the art. It would have been obvious to a person of ordinary skill in the art to dispose an electric circuit of Suyama on a substrate, because this would fixedly secure the electric circuit and easily assemble the device as well as to remove or to attach the electric circuit, from or to the device.

As to claim 2, Suyama discloses a number of pixels formed on said respective display surfaces of said at least two display devices at a predetermined pixel pitch (see Fig. 44).

As to claim 3, Suyama discloses a number of pixels formed on said respective display surfaces of said at least two display devices at different pixel pitches depending on said respective display devices (see Fig. 45).

As to claims 4 and 5, Suyama discloses the transparent region formed at least in conformity with the pixel pitch either on said display surface of said front display device or on said display surface of said rear display device (see Figs. 3, 26, 34, 44 and 45).

As to claim 6, Suyama discloses said respective display surfaces of said front display device and rear display device displaying the same image data with different brightness to make stereoscopic display (see col. 2, line 39 through col. 3, line 30; col. 11, lines 8-5; col. 13, line 14).

As to claim 7, Suyama discloses said respective display surfaces of said front display device and rear display device lying in front and behind display split image data to make

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stereoscopic display, said split images being obtained by splitting the image to be displayed (see abstract).

As to claim 11, Suyama discloses the electric circuit (a circuit including elements 1102-1105 as shown in Fig. 26A or elements 2104-2106 as shown in Fig. 34) feeding image data signals which are produced by adjusting an amplitude of a video signal to said respective display devices (see col. 2, line 39 through col. 3, line 30; col. 11, lines 8-5; col. 13, line 14).

As to claim 12, see the rejection to claim 6 above.

As to claim 13, see the rejection to claim 7 above.

As to claims 16 and 17, Suyama discloses the image data comprising a number of pixel data or a number of groups of pixel data (see Figs. 44 and 45).

As to claim 18, Suyama discloses the transparent region overlapped with a region of the image data of the rear display device with the spacing kept in a direction of an optical axis (see Fig. 3, 26A, or 34 and by virtue of the transparent displays).

As to claim 19, Suyama discloses the amplitudes of the image data signals set in accordance with a depth of each portion of the stereoscopic image with respect to a reference position, which is an assumed position of a viewer (see col. 2, line 39 through col. 3, line 30; col. 11, lines 8-5; col. 13, line 14).

9. Claims 8, 9, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suyama, as applied to either claim 1 or 10 above, and further in view of Hiroaki.

As to these claims, Suyama further discloses the display device being a LCD (see Fig. 57), LED, plasma, FED, DMD, or line drawing type display (see col. 10, lines 22-31). Suyama does not expressly disclose the display device can be an electroluminescent (EL) display device.

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Accordingly, Suyama discloses all the claimed limitations except for each display device made of an organic EL display or a rearmost display device made of a liquid crystal display and the front display device made of an organic EL display.

However, Hiroaki discloses each display device made of an organic EL display or a rearmost display device (123) made of a liquid crystal display and the front display device (122) made of an organic EL display (see col. 17, line 65 through col. 18, line 51). It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to make each display device of Suyama to be an organic EL display or the front display device of Suyama to be an organic EL display, because this would provide a clearer image, as taught by Hiroaki (see col. 18, lines 38-51).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Inoguchi et al. (US 6,181,301 B1, see Fig1) discloses a conventional spatial image type display comprising a plurality of LCD devices, a conventional combined spatial image type display comprising a LCD and EL device (see col. 1, lines 35-59), and an improved spatial image type display comprising a LCD (1) and EL device (2) (see Fig. 1). Hato (US 5,706,022) discloses a stacked-up 3-D LCD device with a LED backlight (see Fig. 18). Yokota et al. (US 5,416,494) discloses a stacked-up EL device (see Fig. 5, 8, or 9).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675.


The examiner can normally be reached on Monday - Friday, 6:30 a.m. - 3:00 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
May 23, 2007



Jimmy H. Nguyen
Primary Examiner
Technology Division: 2629